

## The Greenhouse Effect: Its Results

Earth's natural greenhouse effect is delicately balanced, giving us livable temperatures worldwide. But we are rightly concerned about possible change, either hotter or cooler:

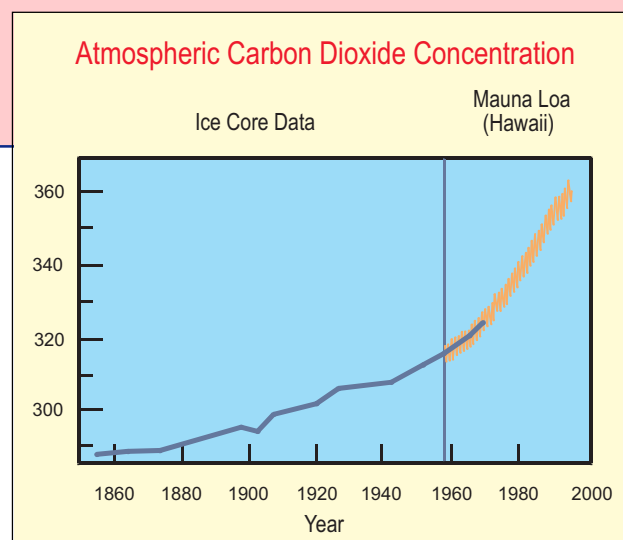
- *A reduced* greenhouse gas (GHG) concentration in the atmosphere would diminish the greenhouse effect, causing global cooling. Sufficient cooling would freeze water into expanded glaciers. This would lower the sea level, create a soaring demand for fossil fuels for heating, and would shift weather patterns.
- *An increased* GHG concentration would increase the greenhouse effect, warming Earth's atmosphere. Just a few degrees increase could partially melt glaciers and ice caps. Meltwater running into the ocean would raise the sea level worldwide, slowly (over years) drowning coastal cities and lowland areas like Florida and Bangladesh. In fact, sea level has slowly risen 4 to 8 inches worldwide during the past century, evidence of warming. Sea level could rise about 3 feet by the year 2100, although this is difficult to calculate. Warming also would alter regional weather, disrupting agriculture—which would mean serious economic and political disruption.

There is little question that human activity is altering the atmosphere. Records kept since 1850 indicate a 30-percent increase in CO<sub>2</sub>, coinciding with worldwide industrialization achieved through fossil-fuel combustion (coal, oil, and gas). The CO<sub>2</sub> increase is certain; it is the consequences that are being debated.

The worldwide warming measured during the past 100 years—about 1°F—sounds tiny, but on a global scale, it becomes significant. This increase is small enough to fall within normal climatic variation, which has included alternating frigid times (ice ages) and warmer interglacial periods (like today's climate) for at least the past 200,000 years. And this highlights a frustration for scientists: we have too little data covering too short a period.

But rising sea levels, retreating glaciers, melting permafrost in the Arctic, and migration of animals and plants into regions that formerly were too cold for them appear to support predictions of greenhouse warming.

In 1995, more than 2,000 climate scientists concluded that Earth's atmosphere is warming and that the "balance of evidence suggests a discernible human influence" on climate.



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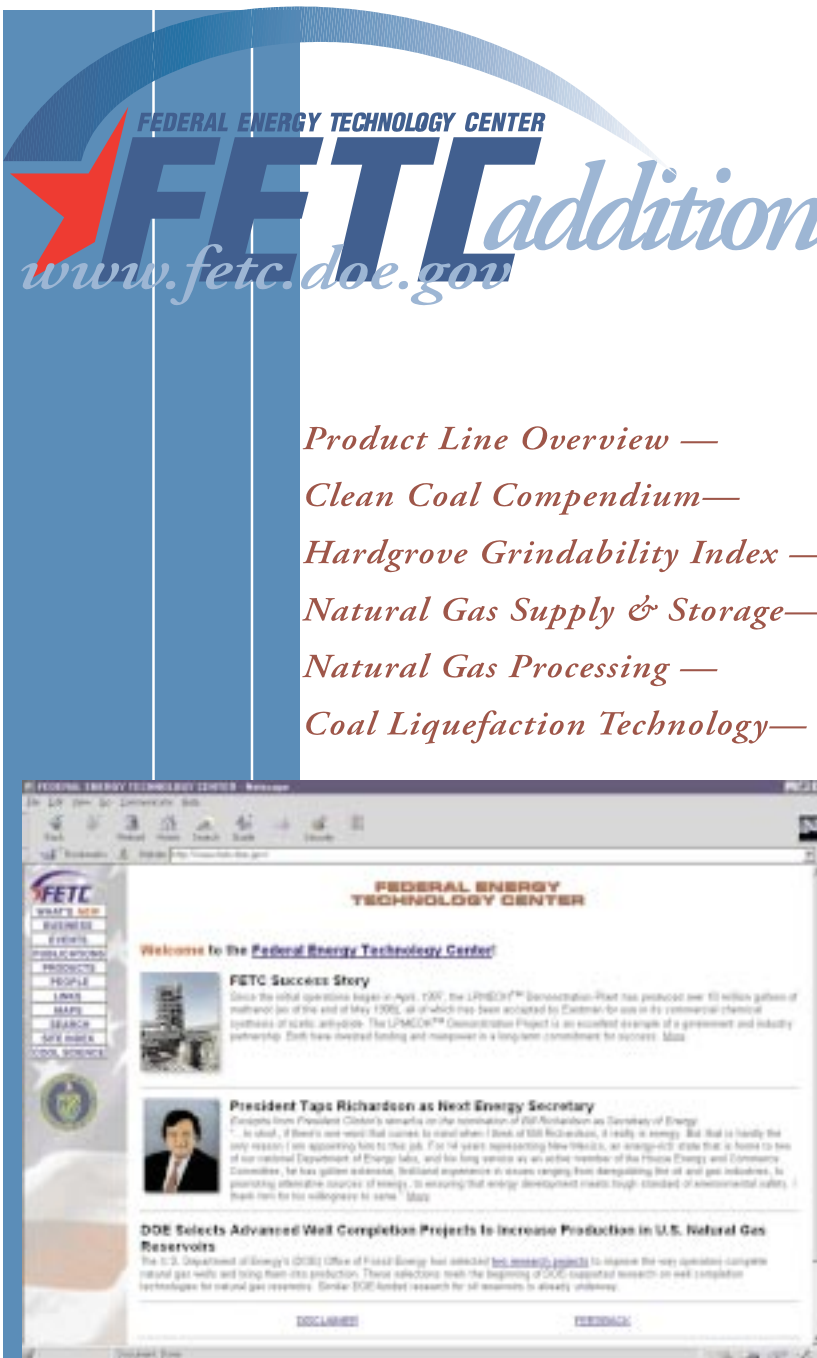
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Printed in the United States on recycled paper



September 1998